Name: _____

Math 1030-06
Spring 2007

Logarithm Worksheet

Solve each of the following equations for x using the 3 logarithm identities and the 3 logarithm rules. Be sure to show your work.

Logarithm Identities

$$\log_{10}(10) = 1, \tag{1}$$

$$\log_{10}(10^x) = x, \tag{2}$$

$$10^{\log_{10}(x)} = x. \tag{3}$$

Logarithm Rules

$$\log_{10}(a \times b) = \log_{10}(a) + \log_{10}(b), \tag{4}$$

$$\log_{10}\left(\frac{a}{b}\right) = \log_{10}(a) - \log_{10}(b), \tag{5}$$

$$10^{\log_{10}(a^n)} = n \times \log_{10}(a). \tag{6}$$

1. $2^x = 16$.

2. $\log_{10}(x) = 2$.

3. $3^x = 10$.

4. $\log_{10}(x) = 1.$

5. $16^x = 2.$

6. $\log_{10}(x) = 0.301.$

7. $2^x = 1.08.$

8. $\log_{10}(x) = 25.$

9. $(1 + x)^9 = 2.$

10. $(1 + x)^{15} = 2.$